

P **Hibiscus sabdariffa**

Common Name(s)

Acedera de Guinea (Sp.), Indian Sorrel, Jamaica Sorrel, Kharkadi, Malventee (Ger.), Red Sorrel, Rosa de Jamaica (Sp.), Rosella (Ger.), Roselle, Sereni (Sp.), Sorrel

How Used

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Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	(+)-ALLOOXYCITRONIC-ACID-LACTONE		Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	(E)-2-HEPTENAL		Calyx	--	--	
2	(E)-2-HEXENAL		Calyx	--	--	
0	(Z)-3-HEXENOL		Calyx	--	--	
0	1,4-CINEOLE		Calyx	--	--	
67	1,8-CINEOLE		Calyx	--	--	
0	1-HEXANOL		Calyx	--	--	
0	1-METHYL-4-(1-METHYLETHYL)-3-CYCLOHEXENOL		Calyx	--	--	
0	2,2-DIMETHYL-HEXANAL		Calyx	--	--	

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	2,3-DIMETHYLBUTANE	Calyx	--	--		
0	2,6-DIMETHYL-5,7-OCTADIEN-2-OL	Calyx	--	--		
0	2-ETHENYLtetrahydro-2,6,6-TRIMETHYL-2H-PYRAN	Calyx	--	--		
0	2-ETHYL-FURAN	Calyx	--	--		
0	2-HEXENOL	Calyx	--	--		
0	2-METHYL-6-METHYLENE-7-OCTEN-2-OL	Calyx	--	--		
0	2-PENTYL-FURAN	Calyx	--	--		
0	3-METHYL-1-BUTANOL	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	3-METHYL-1-BUTANOL	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	3-METHYL-1-BUTANOL	Seed	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	4-METHYL-1-(1-METHYLETHYL)-3-CYCLOHEXEN-1-OL-ACETATE	Calyx	--	--		
0	5-METHYL-2-FURALDEHYDE	Calyx	--	--		
0	6,10,14-TRIMETHYL-2-PENTADECANONE	Calyx	--	--		
16	ACETIC-ACID	Calyx	--	--		
16	ACETIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
16	ACETIC-ACID	Seed	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	ACIDS		Flower 150000	300000	Bisset, N.G., ed.	1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
0	ALLOHYDROXYCITRIC-ACID	Flower --		230000		
0	ALPHA-4-DIMETHYL-3-CYCLOHEXYL-1-ACETALDEHYDE	Calyx --		--		
0	ALPHA-FARNESENE	Calyx --		--		
23	ALPHA-TERPINEOL	Calyx --		--		
0	ALPHA-TERPINYL-ACETATE	Calyx --		--		
0	ALPHA-TERPINYL-ACETATE	Leaf --		--	Chemical Constituents of Oriental Herbs (3 diff. books)	
0	ALPHA-TERPINYL-ACETATE	Seed --		--	Chemical Constituents of Oriental Herbs (3 diff. books)	
0	ALPHA-TERPINYL-ACETATE	Fruit --		--	Chemical Constituents of Oriental Herbs (3 diff. books)	
32	ALPHA-TOCOPHEROL	Seed --	500	0.8571112050632521		
5	ALUMINUM	Flower 14	125	0.46945991962978617		
7	ANISALDEHYDE	Fruit --		--	Chemical Constituents of Oriental Herbs (3 diff. books)	
7	ANISALDEHYDE	Leaf --		--	Chemical Constituents of Oriental Herbs (3 diff. books)	
30	ANTHOCYANINS	Calyx 10000	20000			
0	ARABINANS	Flower --		--		

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	ARABINOGLACTANS		Flower --	--		
112	ASCORBIC-ACID		Flower 22	200	-0.7732197962345587	
112	ASCORBIC-ACID		Fruit 540	3750	-0.05132528273853201	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH		Leaf 10000	111000	-0.1383371792482167	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH		Flower 2200	20000	-1.1066700142226569	
3	ASPARTIC-ACID		Plant --	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
24	BENZALDEHYDE		Fruit --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
9	BENZYL-ALCOHOL		Leaf --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
9	BENZYL-ALCOHOL		Fruit --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
53	BETA-CAROTENE		Flower 1	9	-0.4832859262086817	
53	BETA-CAROTENE		Leaf 41	555	1.2790561648525607	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
47	BETA-SITOSTEROL		Seed --	--		
0	BETA-SITOSTEROL-BETA-D-GALACTOPYRANOSIDE		Plant --	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	BETA-SITOSTEROL-BETA-D-GALACTOSIDE	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	BETA-SITOSTERYL-BENZOATE	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
6	BUTYRIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
28	CALCIUM	Flower	374	3400	-0.6558141831778627	
28	CALCIUM	Leaf	2130	14792	-0.24906661049521867	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	CALCIUM	Seed	3200	6000	0.3404249554690761	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	CALCIUM-OXALATE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	CAMPESTEROL	Seed	--	--		
5	CAPRYLIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
5	CAPRYLIC-ACID	Seed	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	CARBOHYDRATES	Flower	76000	804000	0.7751516195620832	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	CARBOHYDRATES	Leaf	92000	765000	1.217945652424372	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	CARBOHYDRATES	Seed	--	557000	0.13352409975853574	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	CARYOPHYLLENE	Calyx	--	--		
1	CELLULOSE	Seed	--	168000	0.5783739206201094	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
1	CHOLESTEROL	Seed	--	--		
24	CHROMIUM	Flower	0.6	5.4	1.1789575691255427	
0	CIS-12,13-EPOXY-CIS-9-OCTADECENOIC-ACID	Seed	--	--		=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp
23	CITRIC-ACID	Fruit	37400	170000	2.131164153919124	
23	CITRIC-ACID	Flower	6233	56667		
4	CLEOMISCOSIN-A	Root Bark	--	--		
2	CLEOMISCOSIN-C	Root Bark	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	CLEOMISCOSIN-D	Root --	--			
		Bark				
0	CLEROSTEROL	Seed --	--			
2	COBALT	Flower 0.6	5	-0.2767916858148855		
12	COPPER	Flower 5.6	6.2	-1.2821653170679421		
0	CYANIDIN-3,5-DIGLUCOSIDE	Flower --	--		=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp	
0	CYANIDIN-3-D(2-GLUCOSYL)-RUTINOSIDE	Flower --	--		=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp	
0	CYANIDIN-3-GLUCOSIDE	Calyx --	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.	
0	CYANIDIN-3-SAMBUBIOSIDE	Flower --	--			
0	CYANIDIN-3-SAMBUBIOSIDE	Calyx --	--			
0	CYANIDIN-3-XYLOGLUCOSIDE	Flower --	--			

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
9	DELPHINIDIN		Calyx	--	--	
1	DELPHINIDIN-3-GLUCOSIDE		Calyx	--	--	
0	DELPHINIDIN-3-SAMBUBIOSIDE		Calyx	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	DELPHINIDIN-3-XYLOGLUCOSIDE		Flower	--	--	
0	DELPHININ		Flower	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)
1	DELTA-5-AVENASTEROL		Seed	--	--	
4	DELTA-TOCOPHEROL		Seed	--	10	-1
0	EPOXYOLEIC-ACID		Seed	--	--	=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp
5	ERGOSTEROL		Seed	--	--	
24	ETHANOL		Fruit	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)
24	ETHANOL		Leaf	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)
24	ETHANOL		Seed	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
76	EUGENOL	Calyx -- --				
0	EXO-2-HYDROXYCINEOLE	Calyx -- --				
0	FAT	Leaf	3000	33000	-0.4675244951730983	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FAT	Seed 168000 223000 -0.2232706050728116				
0	FAT	Flower 1100 10000 -0.7523791209673999				
15	FIBER	Flower 10000 374600 2.971685757852178			CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses	
15	FIBER	Leaf	13000	114000	-0.5878237990866672	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Seed -- 120000 -0.11669610810150641			CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses	
0	FIBER(CRUIDE)	Flower -- 30000 -1.7666052469086984				
0	FIBER(DIETARY)	Flower -- 140000 -1.7977084105707757				
13	FORMIC-ACID	Fruit -- --			Chemical Constituents of Oriental Herbs (3 diff. books)	
13	FORMIC-ACID	Seed -- --			Chemical Constituents of Oriental Herbs (3 diff. books)	
0	FRUIT-ACIDS	Calyx 150000 350000				
6	FURFURAL	Calyx -- --				

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
1	GALACTOSE		Flower --	--		
0	GALACTURONIC-ACID		Flower --	--		
14	GAMMA-TOCOPHEROL		Seed --	1490	0.4109961537087907	
4	GLYCOLIC-ACID		Flower --	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GOSSIPETIN		Flower --	--		
7	GOSSYPETIN		Flower --	--		
0	GOSSYPETIN-3-GLUCOSIDE		Flower --	--		Rizk, A.F.M. and Al-Nowaihi, A.S., The Phytochemistry of the Horticultural Plants of Qatar, Scientific and Applied Research Centre, University of Qatar.
0	HEPTANAL		Calyx --	--		
5	HEXANAL		Calyx --	--		
0	HIBISCETIN		Flower --	--		
0	HIBISCIC-ACID		Flower	153000	230000	
0	HIBISCIN		Flower --	--		
2	HIBISCIN-CHLORIDE		Plant --	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	HIBISCITRIN		Flower --	--		

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	HIBISCRETIN		Flower --	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	HIBISCUS-ACID		Flower --	230000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYDROXYBENZOIC-ACIDS		Flower --	--		
0	HYDROXYCINNAMIC-ACIDS		Flower --	--		
0	IBISCIC-ACID		Flower 27500	250000		
6	IRON		Leaf 15	333	-0.07651054521577247	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
6	IRON		Flower 0.7	6	-1.063209446177288	
3	ISOAMYL-ALCOHOL		Fruit --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
3	ISOAMYL-ALCOHOL		Leaf --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
3	ISOAMYL-ALCOHOL		Seed --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
2	ISOPROPYL-ALCOHOL		Leaf --	--		Chemical Constituents of Oriental Herbs (3 diff. books)
2	ISOPROPYL-ALCOHOL		Seed --	--		Chemical Constituents of Oriental Herbs (3 diff. books)

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
2	ISOPROPYL-ALCOHOL	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
60	LIMONENE	Calyx	--	--		
53	LINALOOL	Calyx	--	--		
0	LINALOOL-OXIDE	Calyx	--	--		
27	LINOLEIC-ACID	Seed	--	--	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses	
65	MAGNESIUM	Flower	44	400	-1.7433560491071525	
0	MALEIC-ACID	Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.	
15	MALIC-ACID	Leaf	--	12500	0.2822875522116279	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
15	MALIC-ACID	Stem	--	6000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
15	MALIC-ACID	Flower	6233	56667	1	
0	MALVALIC-ACID	Seed	--	--	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses	
14	MANGANESE	Flower	2	15.1	-0.3393278990760618	

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
3	MANNOSE				Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.	
2	METHANOL	Seed	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)	
2	METHANOL	Fruit	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)	
2	METHANOL	Leaf	--	--	Chemical Constituents of Oriental Herbs (3 diff. books)	
21	METHYL-SALICYLATE	Calyx	--	--		
3	MUCILAGE	Calyx	15000	650000		
6	MYRISTIC-ACID	Seed	--	--	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses	
39	NIACIN	Flower	1.3	12	-0.8122224292191794	
39	NIACIN	Leaf	12	132	0.4196344734008024	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	NITROGEN	Seed	--	32900	0.7317342785449883	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	NONANAL	Calyx	--	--		
0	OCTANAL	Calyx	--	--		

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
18	OLEIC-ACID	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
9	OXALIC-ACID	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	PALMITIC-ACID	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	PALMITOLEIC-ACID	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
24	PECTIN	Fruit	--	10200	-0.5091471100383528	
24	PECTIN	Calyx	--	31900		
0	PELARGONIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	PELARGONIC-ACID	Seed	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	PENTOSANS	Seed	--	158000	1.6551977117399692	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	PHOSPHORUS	Leaf	480	6458	0.2735050043469738	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
4	PHOSPHORUS	Seed	--	6000	0.17088218232138022	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	PHOSPHORUS	Flower	110	1000	-1.1392165553859557	
2	PHYTOSTEROLS	Calyx	--	--		
14	POTASSIUM	Flower	1034	9400	-1.0124925447320965	
34	PROANTHOCYANIDINS	Flower	--	--		
6	PROPIONIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
6	PROPIONIC-ACID	Seed	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	PROTEIN	Flower	6600	60000	-0.960645369865758	
43	PROTOCATECHUIC-ACID	Flower	--	--		
0	RESIN	Calyx	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	RHAMNOGALACTURANS	Flower	--	--		
0	RHAMNOSE	Flower	--	--		
15	RIBOFLAVIN	Flower	0.1	0.5	-1.3399966931295562	
15	RIBOFLAVIN	Leaf	1	31	-0.0325494690927309	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
0	SABDARETIN		Flower	--	--	Rizk, A.F.M. and Al-Nowaihi, A.S., The Phytochemistry of the Horticultural Plants of Qatar, Scientific and Applied Research Centre, University of Qatar.
0	SABDARITRIN		Flower	--	--	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	SAMBUBIOSIDE		Flower	--	--	
0	SAPONIN		Root	--	--	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
44	SCOPOLETIN		Root	--	--	
			Bark			
60	SELENIUM		Flower	1.6	14.3	1.7265796092320822
4	SILICON		Flower	1	9.1	-0.45868138661471586
1	SODIUM		Flower	42	382	-0.3952249147727747
5	STARCH		Seed	--	111000	-0.8064850823445846 ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
8	STEARIC-ACID		Seed	--	--	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	STERCULIC-ACID		Seed	--	--	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Chemical Plant Part		Low	High	StdDev	Reference	Citation
		PPM	PPM			
14	SUCROSE		Calyx --	2400		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	SUGARS		Flower 12100	110000 0		
14	SULFUR		Seed --	4000	0.8287417461896122	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
6	TARTARIC-ACID		Root --	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
6	TARTARIC-ACID		Flower 6233	56667		
0	TETRAHYDRO-2,2-DIMETHYL-5-(1-METHYLPROPYL)-FURAN		Calyx --	--		
31	THIAMIN		Flower --	3	-0.6757315085489463	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	THIAMIN		Leaf --	12	0.7701228842235702	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	THIAMINE		Flower 0.1	0.5	-1.3840402025670708	
4	TIN		Flower 1	10	-0.8082238591204874	
93	TOCOPHEROL		Seed --	--		
0	TOCOPHEROLS		Seed --	2000	0.8822917687956566	

Chemical Plant Part		Low	High	StdDev	Reference	Citation	
		PPM	PPM				
0	UTALONIC-ACID		Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.	
0	WATER		Flower	--	890000	0.5075484737057864	
0	WATER		Leaf	--	856000	0.2412787411612874	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	WATER		Seed	76000	129000	-0.3783965720128981	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	XYLOSE		Calyx	--	--	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.	
77	ZINC		Flower	--	--		